

## ABSTRACT OF THE DISCLOSURE

A control apparatus is provided for eliminating a step in a control input before and after switching between control processing based on one modulation algorithm selected from a  $\Delta$  modulation algorithm, a  $\Delta\Sigma$  modulation algorithm, and a  $\Sigma\Delta$  modulation algorithm and control processing based on a response specified control algorithm to avoid a sudden change in the output of a controlled object in the event of the switching. The control apparatus comprises an ECU for calculating a predicted value for an output deviation, calculating a target air/fuel ratio in accordance with the predicted value based on the  $\Delta\Sigma$  modulation algorithm and sliding mode control algorithm, selecting the target air/fuel ratio calculated based on one of the algorithms in accordance with a particular operating condition of an internal combustion engine, and switching the calculation of the target air/fuel ratio when the selection of the target air/fuel ratio is changed from the  $\Delta\Sigma$  modulation algorithm to the sliding mode control algorithm if the absolute predicted value is equal to or less than a predetermined value.